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Status PROTOTYPE

Embry-Riddle Aeronautical University

Title: Awohali - Memory



Size: B Sheet: /Memory/

Revision: 1

Date: 2025-07-01

Sheet 3 of 16

File: memory.kicad_sch

Drawn By: Madison Gleydura

A

A

B

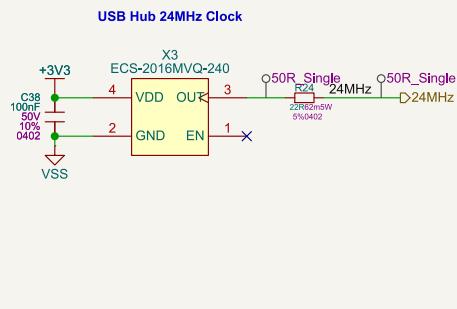
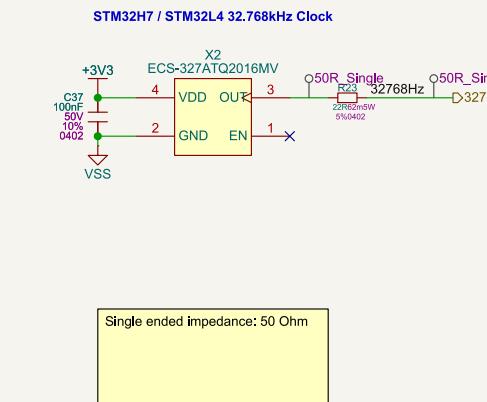
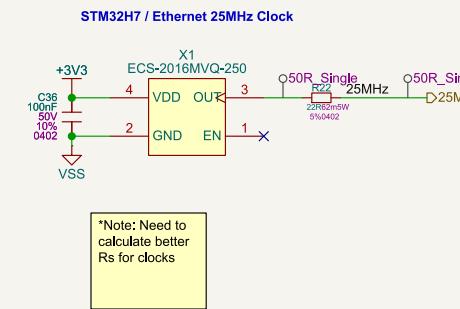
B

C

C

D

D



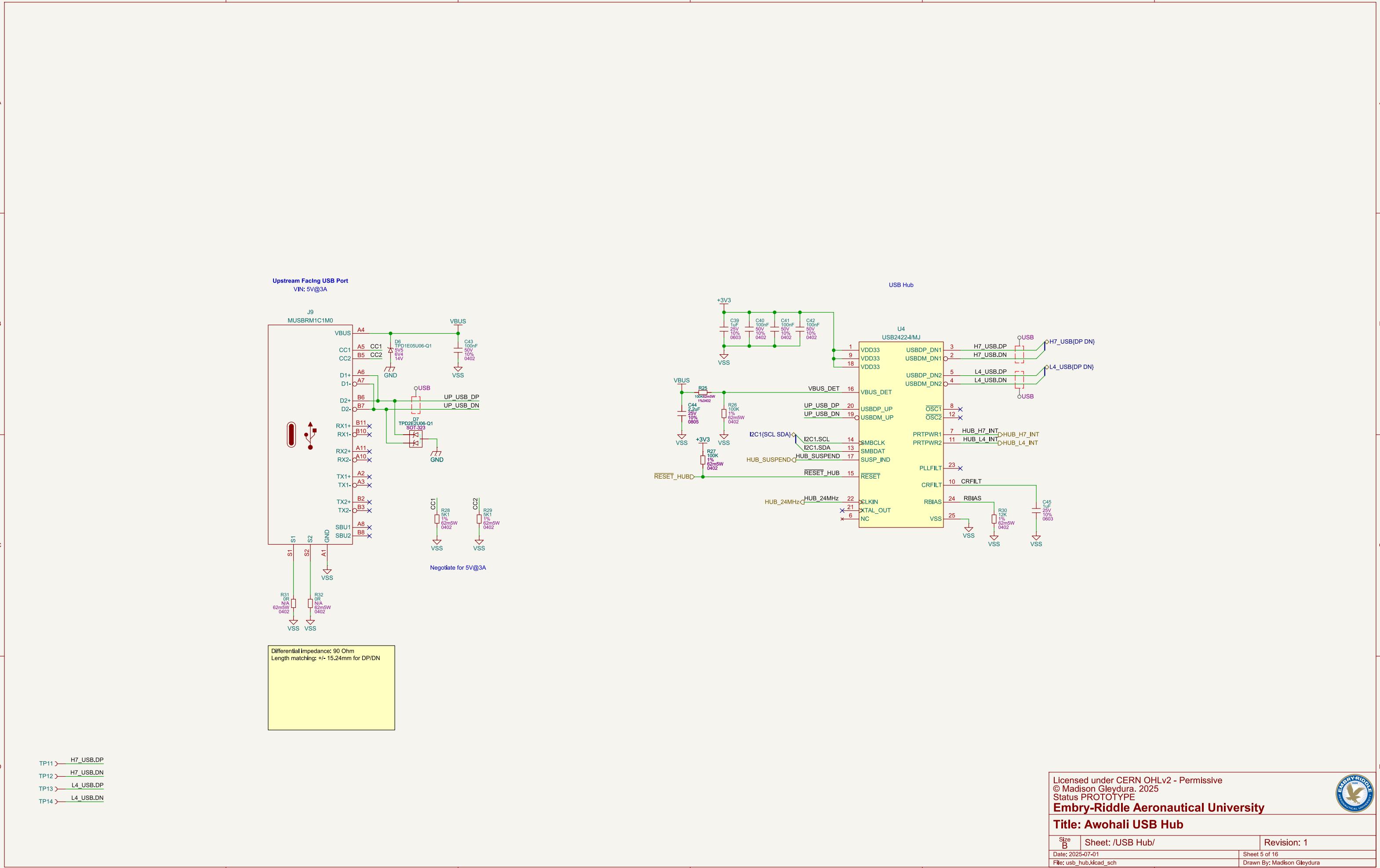
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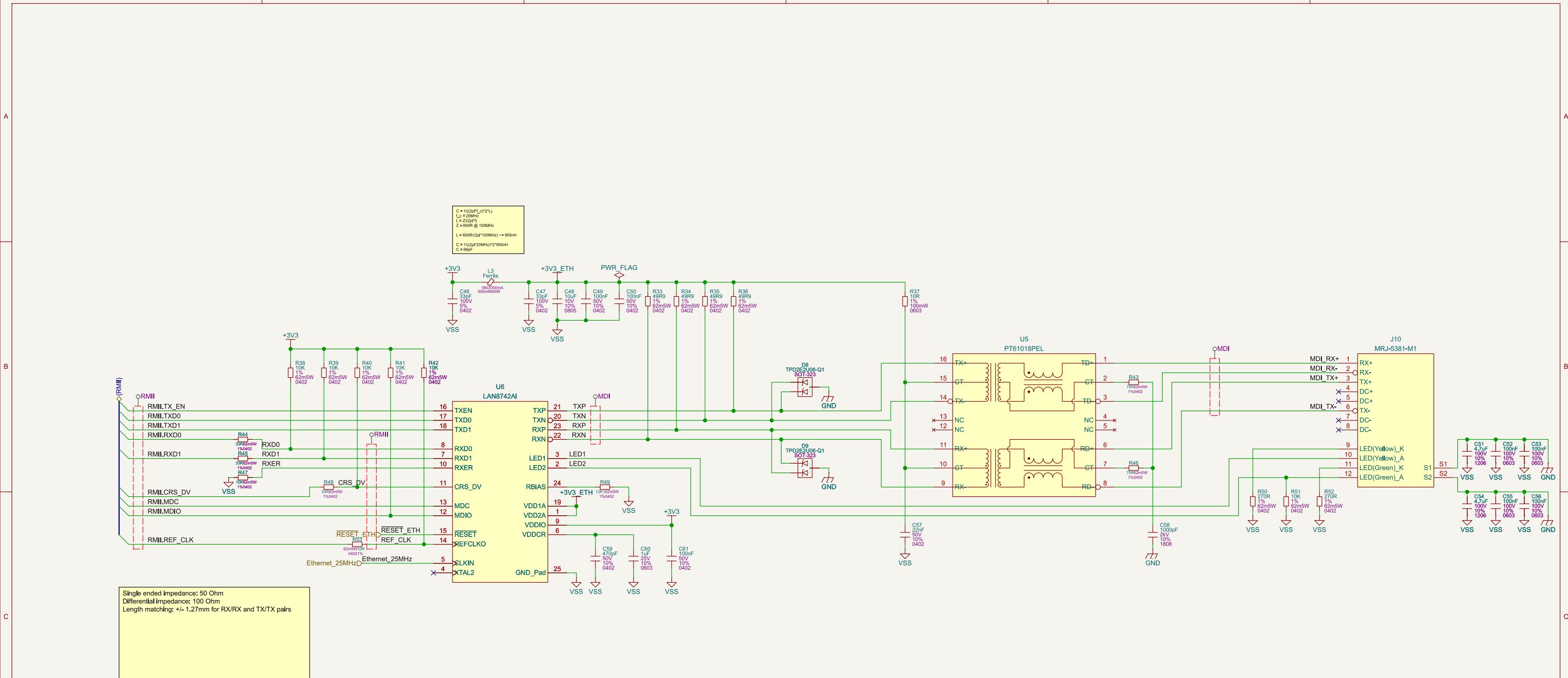
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Title: Awohali - Clocks



Size: B	Sheet: /Clocks/	Revision: 1
Date: 2025-07-01	Sheet 4 of 16	
File: clocks.kicad_sch	Drawn By: Madison Gleydura	





TP15 TXP
 TP16 TXN
 TP17 RXP
 TP18 RXN
 TP19 VSS

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Title: Awohali Ethernet



Size	Sheet:	Revision:
B	/Ethernet/	1
Date: 2025-07-01	Sheet 6 of 16	
File: ethernet.kicad_sch	Drawn By: Madison Gleydura	

A

A

B

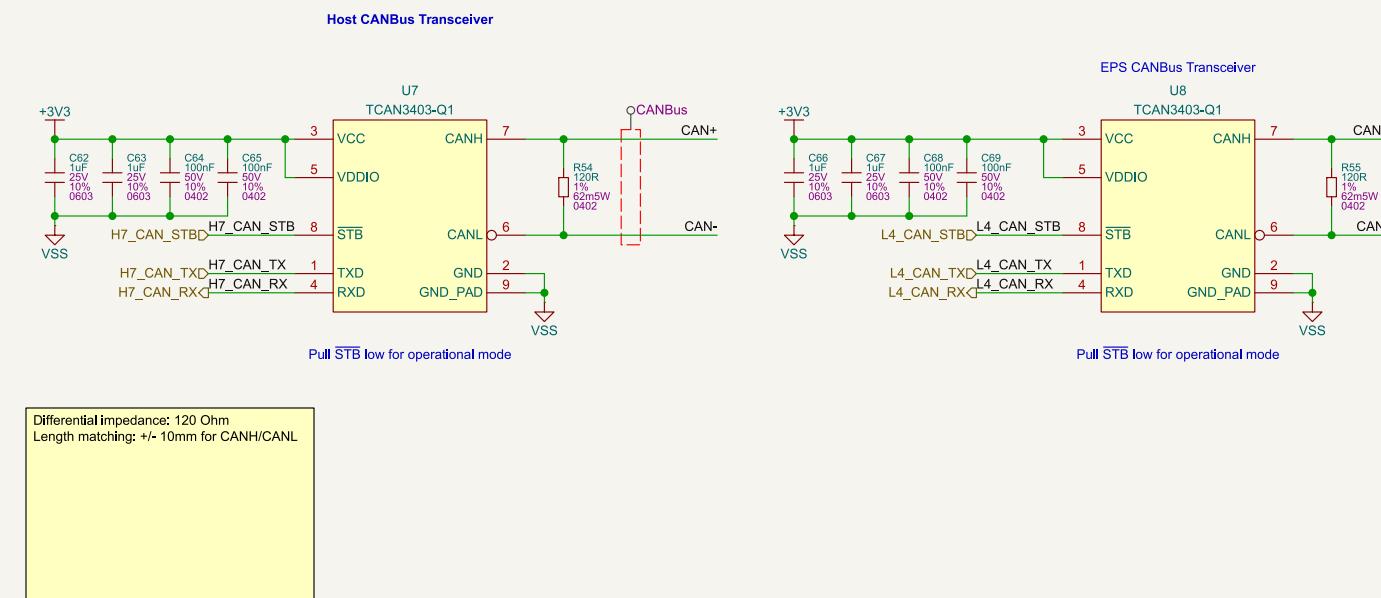
B

C

C

D

D



TP20 → H7_CAN_TX
TP21 → H7_CAN_RX
TP22 → CAN+
TP23 → CAN-
TP24 → L4_CAN_TX
TP25 → L4_CAN_RX
TP26 → VSS
TP27 → VSS

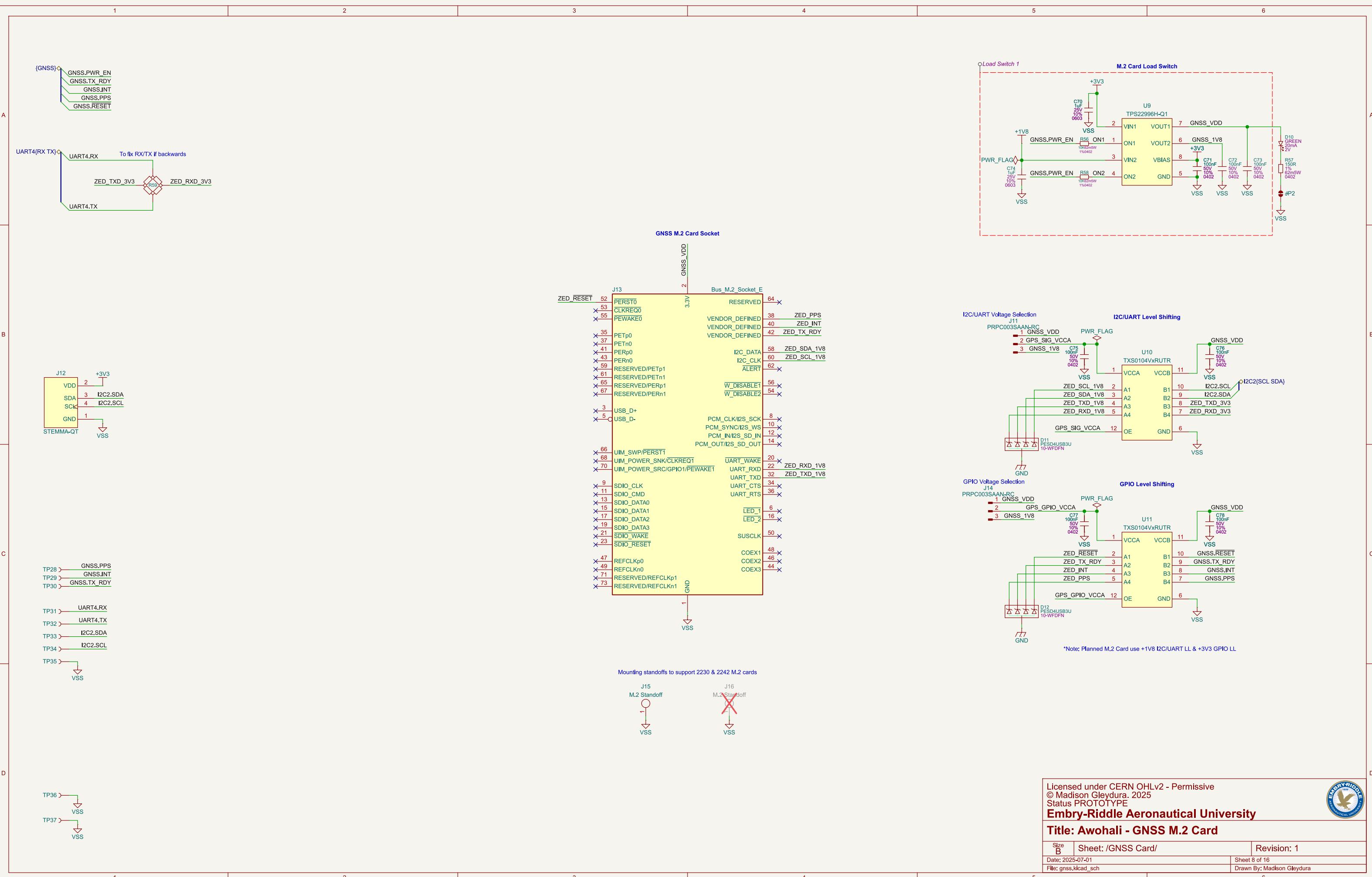
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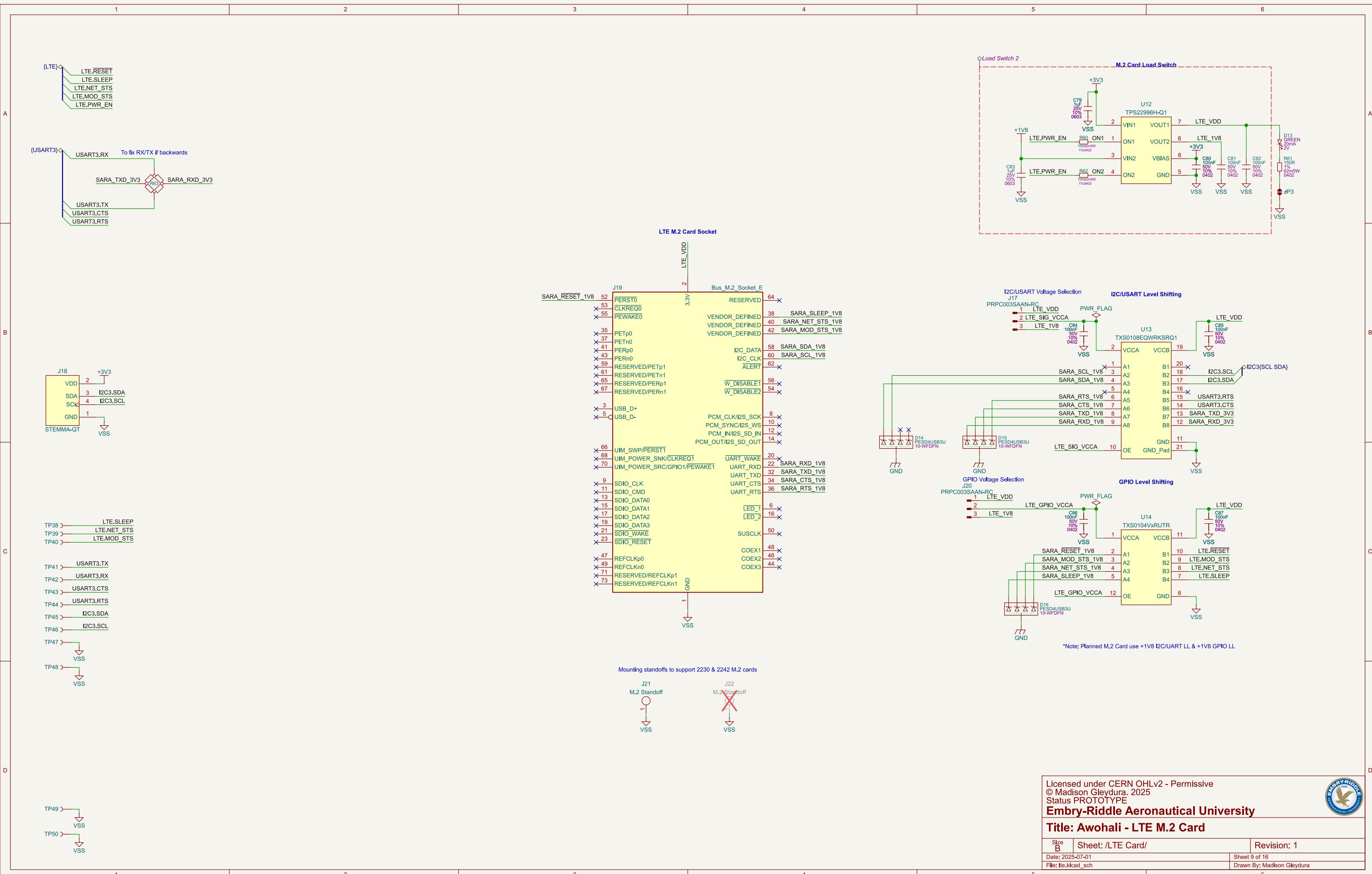
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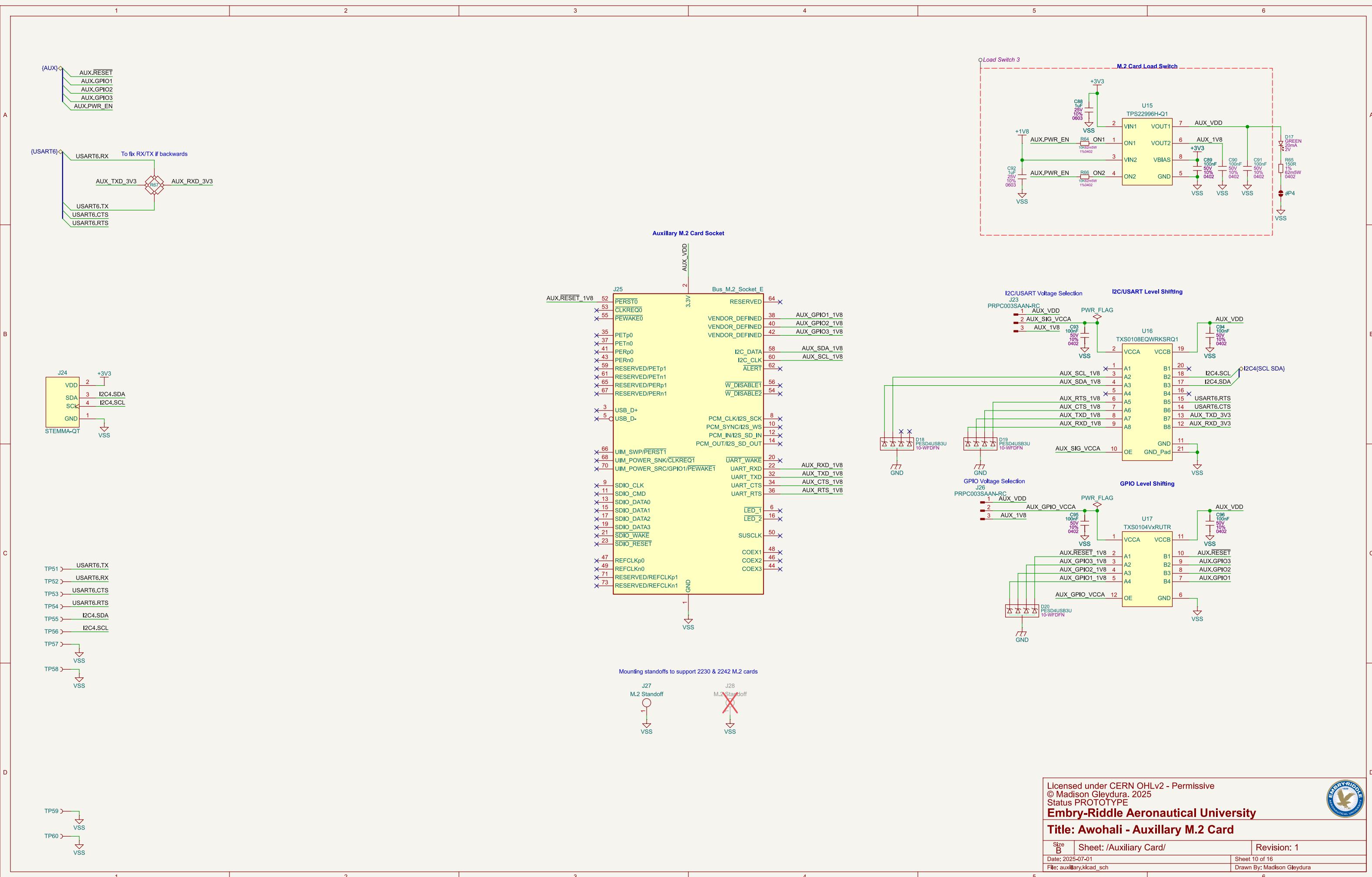
Title: Awohali CANBus Transceivers

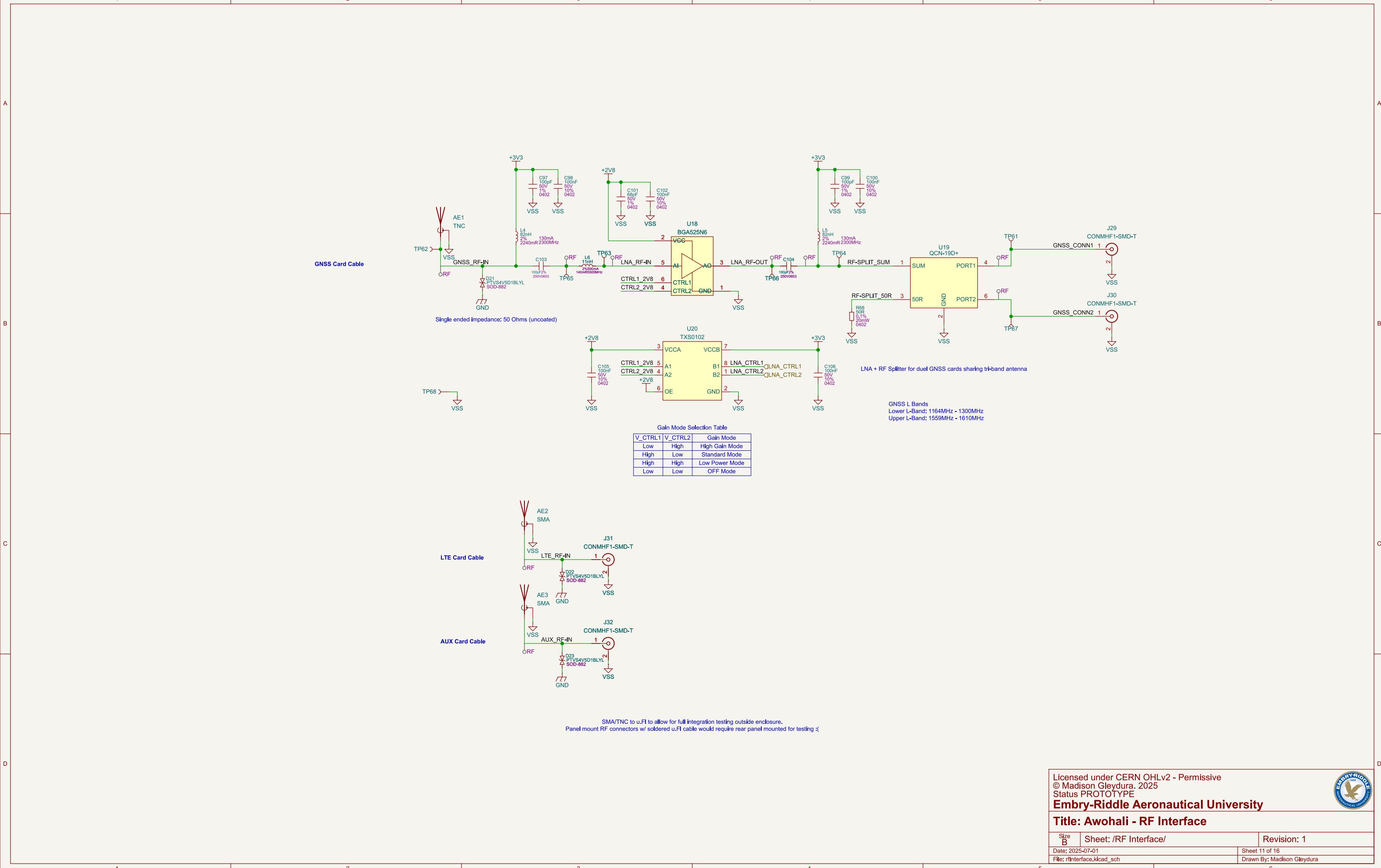


Size: B	Sheet: /CANBus Transceivers/	Revision: 1
Date: 2025-07-01	Sheet 7 of 16	
File: canTransceivers.kicad_sch	Drawn By: Madison Gleydura	









A

A

B

B

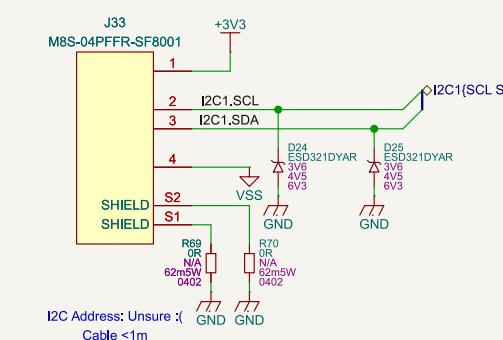
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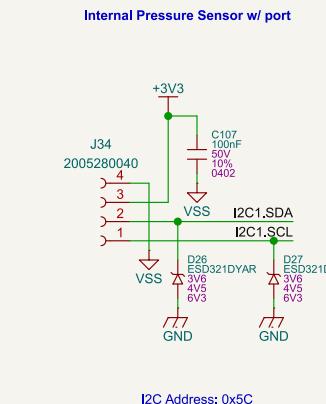
D

D

External Temperature/Humidity Sensor



Internal Pressure Sensor w/ port



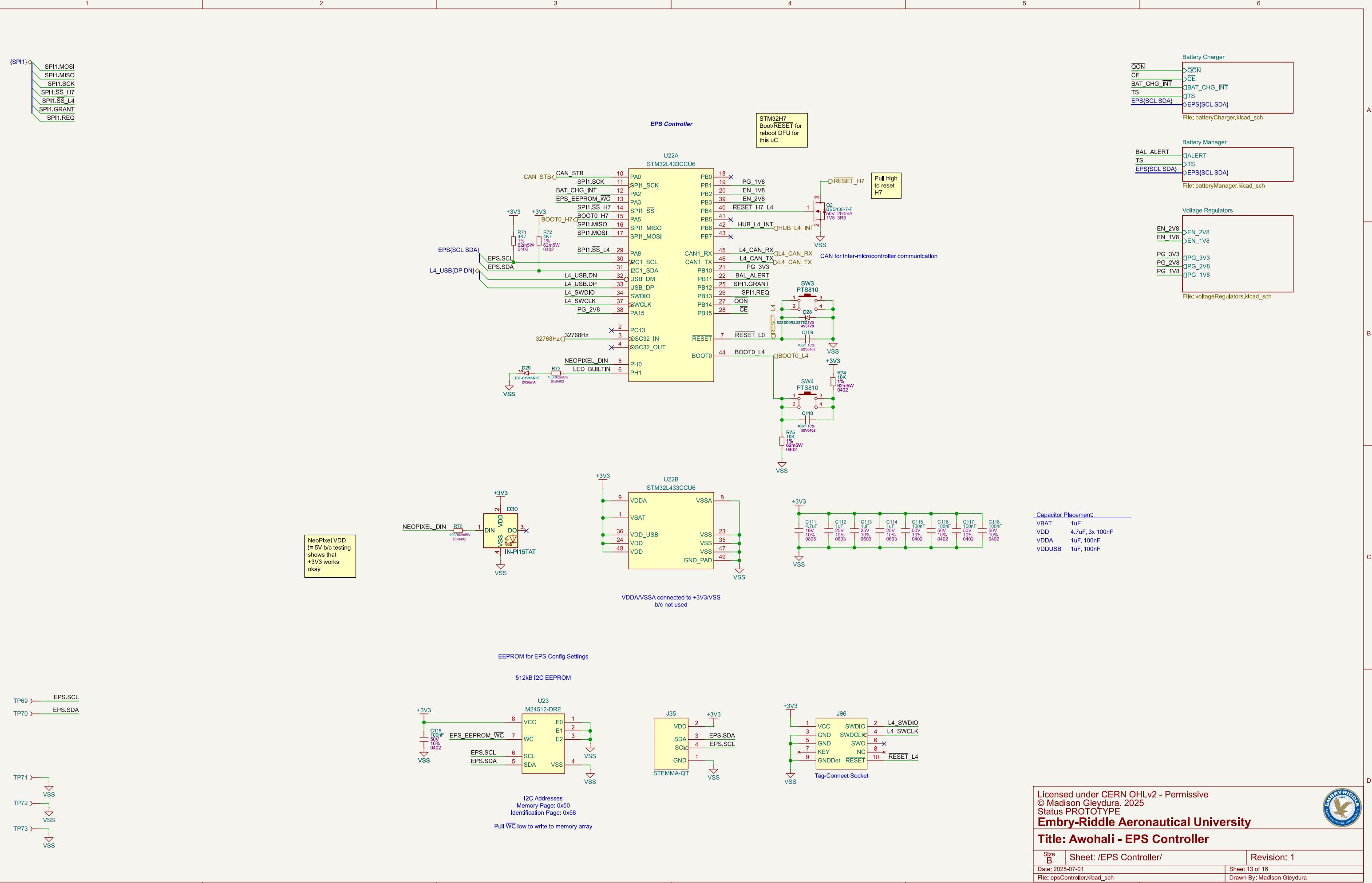
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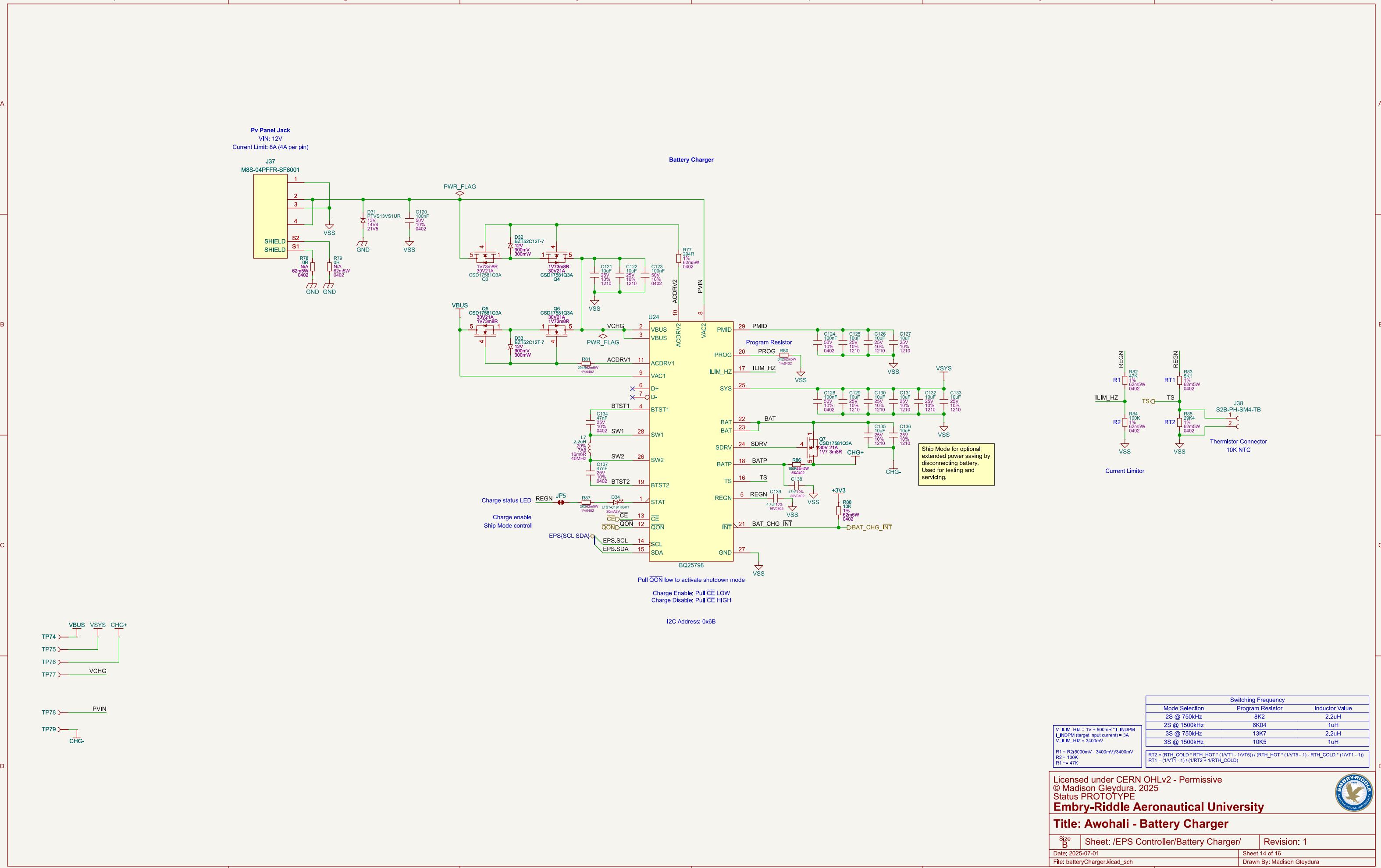
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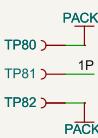
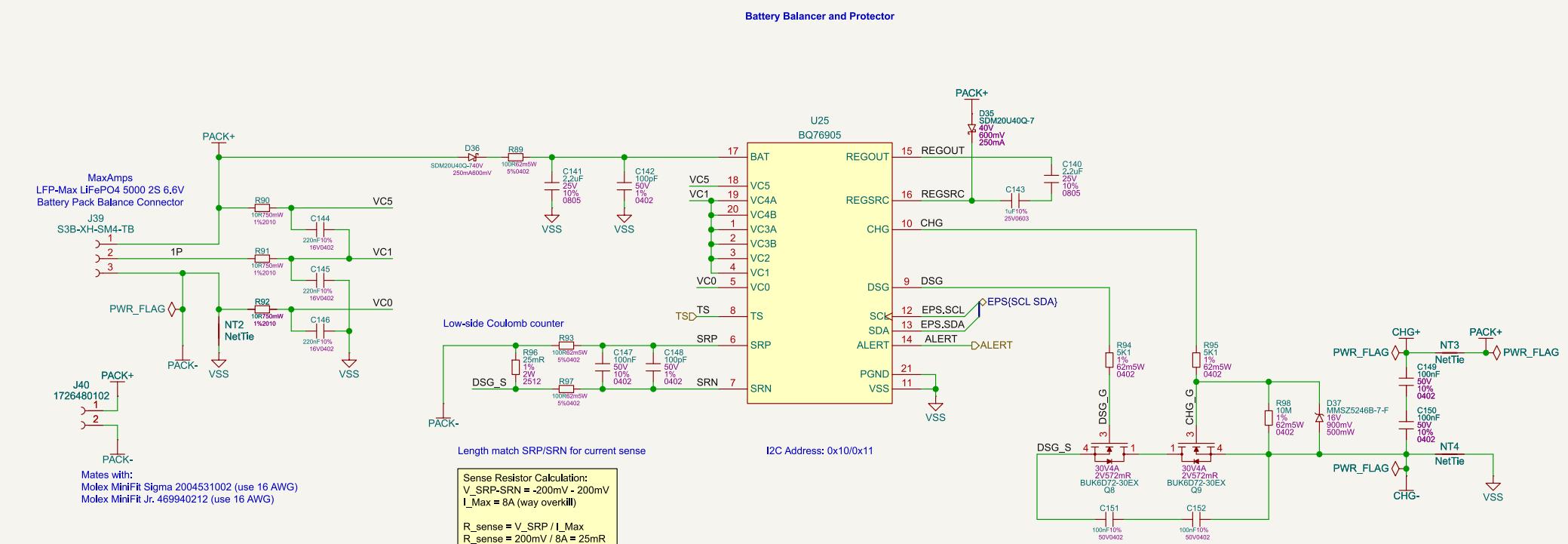
Title: Awohali - Environmental Sensors



Size	Sheet:	Revision:
B	/Environmental Sensors/	1
Date: 2025-07-01	Sheet 12 of 16	
File: sensors.kicad_sch	Drawn By: Madison Gleydura	







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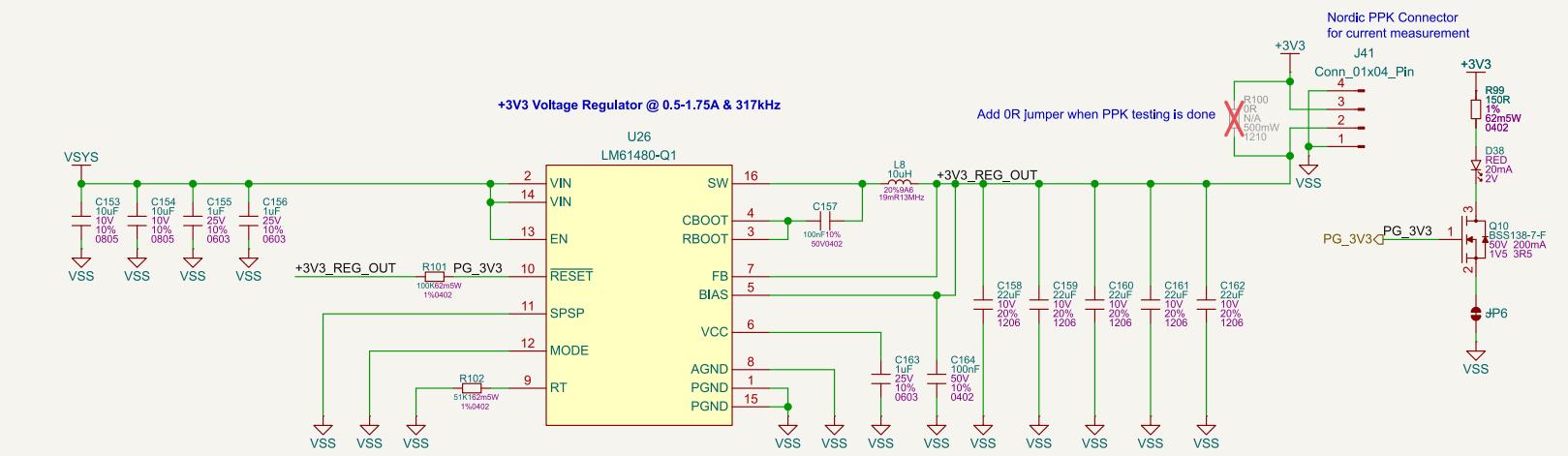
Title: Awohali Battery Monitor and Protector

Sheet: /EPS Controller/Battery Manager/ Revision: 1

Date: 2025-07-01 Sheet 15 of 16

File: batteryManager.kicad_sch Drawn By: Madison Gleydura

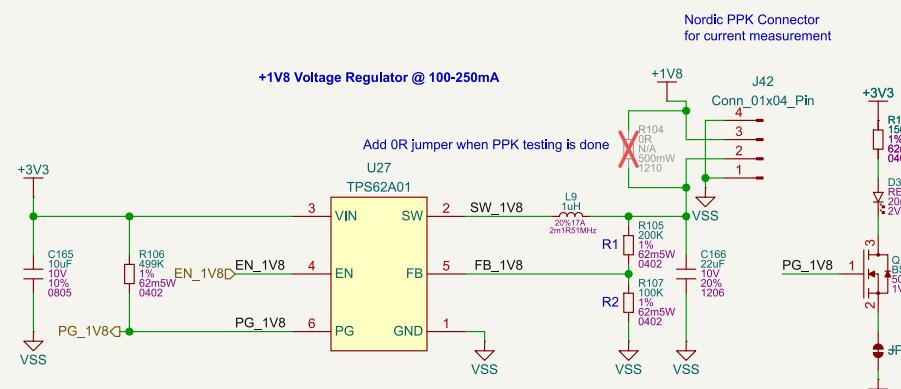
6



Passes PSPICE sim w/ Vout ripple \approx 10mV @ 500mA load & \approx 5mV @ 1.5A load

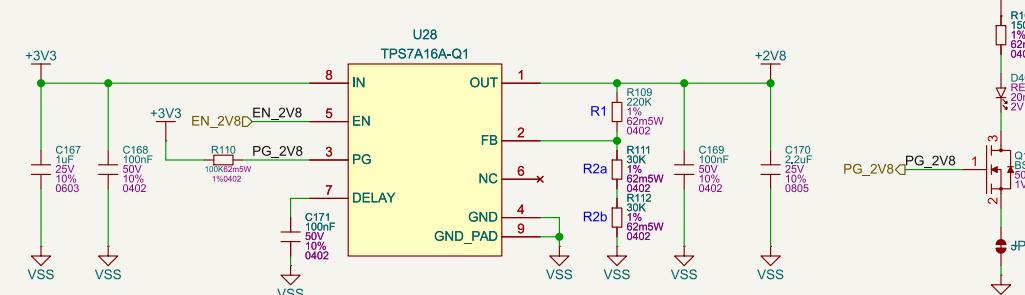
Frequency Selection:
 $R_t(k\text{Ohm}) = 16.4/f_{sw}(\text{MHz})$
 $f_{sw} = 317\text{kHz}$

.633
Inductor Selection:
 $L = (Vin-Vout)/(0.25*fsw*Imax)*Vout$
fsw = 317kHz
Imax = 1A75
Vin = 6V6
Vout = 3V3
L ~ 10uH



Passes PSPICE sim w/ $V_{out_ripple} \approx 3.6\text{mV}$ @ 100mA load & $\approx 1.7\text{mV}$ @ 250mA load

$$\begin{aligned}R1 &= R2 * (\text{Vout}/600\text{mV}) \\ \text{Vout} &= 1\text{V8} \\ R2 &= 100\text{K} \\ \\ R1 &= 200\text{K}\end{aligned}$$



$$\begin{aligned} R1 &= R2 * (\text{Vout}/600\text{mV} - 1) \\ \text{Vout} &= 2\text{V8} \\ R2 &= 60\text{K} = 30\text{K} + 30\text{K} \\ R1 &= 220\text{K} \end{aligned}$$

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Title: Australian Voltage Regulation

